

CLAIMS

1. A method for streaming media data to a client, said method comprising the steps of:

- 5 a) encoding said media data to be streamed to said client into a first multiple description bitstream and into a second multiple description bitstream; and
- b) distributing said first and second multiple description bitstreams to a plurality of servers placed at intermediate nodes throughout a  
10 network, such that said client is provided with access to said media data via a plurality of transmission paths.

2. The method for streaming media data to a client as recited in Claim 1, wherein said step a) comprises:

- 15 encoding said media data to be streamed to said client into a first and second complementary multiple description bitstream wherein each of said first and second complementary multiple description bitstreams is independently useful to said client, and wherein each of said first and second complementary multiple description bitstreams contains  
20 complementary information.

3. The method for streaming media data to a client as recited in said step a) of Claim 1, wherein said media data to be streamed to said client is encoded into said first and second complementary multiple description  
25 bitstreams wherein each of said first and second complementary multiple description bitstreams are of substantially equal importance

4. The method for streaming media data to a client as recited in Claim 1, wherein said step a) comprises:

- 30 encoding said media data to be streamed to said client into a first and second complementary multiple description bitstream wherein both of said first and second complementary multiple description bitstreams do not require a combined bitrate as great as twice the total bitrate required by a conventional coding algorithm.

35 5. The method for streaming media data to a client as recited in said step a) of Claim 1, wherein said media data to be streamed to said client is selected from the group comprising audio-based data, speech-based data, image-based data, graphic data, and web page-based data.

6. The method for streaming media data to a client as recited in Claim 1, wherein said step b) comprises:

- 5 distributing said first multiple description bitstream to a first server and distributing said second multiple description bitstream to a second server.

7. The method for streaming media data to a client as recited in Claim 1, wherein said client is a mobile client.

8. The method for streaming media data to a client as recited in Claim 7, wherein said step b) comprises:

distributing said first and second multiple description bitstreams to servers placed along a wired/wireless gateway.

9. The method for streaming media data to a client as recited in Claim 1, wherein said method does not require complete duplication of said media data in order to achieve path diversity.

10. The method for streaming media data to a client as recited in Claim 1, wherein said method is performed in a network system selected from the group comprising: wired and wired networks; wired and wireless networks; wireless and wired networks; and wireless and wireless networks.

11. A method for achieving reliability and efficiency and for reducing single points of failure in the streaming of media data to a client, said method comprising the steps of:

a) encoding said media data to be streamed to said client into a first complementary multiple description bitstream and into a second complementary multiple description bitstream, each of said first and second complementary multiple description bitstreams containing complementary information, and wherein each of said first and second complementary multiple description bitstreams is independently useful to said client; and

b) distributing said first complementary multiple description bitstream and said second complementary multiple description bitstream to a plurality of servers placed at intermediate nodes throughout a network, such that said client is provided with access to said media data

via a plurality of transmission paths such that path diversity is achieved thereby eliminating potential single points of failure.

12. The method for achieving reliability and efficiency and for  
5 reducing single points of failure in the streaming of media data to a client as recited in said step a) of Claim 11, wherein said media data to be streamed to said client is encoded into said first complementary multiple description bitstream and said second complementary multiple description bitstream wherein each of said first and second  
10 complementary multiple description bitstreams are of substantially equal importance

13. The method for achieving reliability and efficiency and for  
reducing single points of failure in the streaming of media data to a client  
15 as recited in Claim 11, wherein said step a) comprises:

- encoding said media data to be streamed to said client into said first and second complementary multiple description bitstreams wherein both of said first and second complementary multiple description bitstreams do not require a combined bitrate as great as twice the total bitrate required  
20 by a conventional coding algorithm.

14. The method for achieving reliability and efficiency and for  
reducing single points of failure in the streaming of media data to a client as recited in said step a) of Claim 11, wherein said media data to be  
25 streamed to said client is selected from the group comprising audio-based data, speech-based data, image-based data, graphic data, and web page-based data.

15. The method for achieving reliability and efficiency and for  
30 reducing single points of failure in the streaming of media data to a client as recited in Claim 11, wherein said step b) comprises:

- distributing said first complementary multiple description bitstream to a first server and distributing said second complementary multiple description bitstream to a second server.  
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16. The method for achieving reliability and efficiency and for  
reducing single points of failure in the streaming of media data to a client as recited in Claim 11, wherein said client is a mobile client.

17. The method for achieving reliability and efficiency and for reducing single points of failure in the streaming of media data to a client as recited in Claim 16, wherein said step b) comprises:

- 5 distributing said first complementary multiple description bitstream and said second complementary multiple description bitstream to servers placed along a wired/wireless gateway.

18. The method for achieving reliability and efficiency and for reducing single points of failure in the streaming of media data to a client as recited in Claim 11, wherein said method does not require complete duplication of said media data in order to achieve path diversity.

19. The method for achieving reliability and efficiency and for reducing single points of failure in the streaming of media data to a client as recited in Claim 11, wherein said method is performed in a network system selected from the group comprising: wired and wired networks; wired and wireless networks; wireless and wired networks; and wireless and wireless networks.

20. A system for streaming media data to a client, said system comprising:  
a first server having memory coupled thereto, said first server adapted to be coupled to a network, said memory coupled to said first server having a first multiple description bitstream of encoded said media data stored thereon, said first server adapted to transmit said first multiple description bitstream of encoded said media data to a client via a first path; and

- a second server having memory coupled thereto, said second server adapted to be coupled to said network, said memory coupled to said second server having a second multiple description bitstream of encoded said media data stored thereon, said second server adapted to transmit said second multiple description bitstream of encoded said media data to said client via a second path.

21. The system for streaming media data to a client of Claim 20 further comprising:

a content server coupled to said first server and said second server, said content server adapted to provide said first multiple description bitstream of encoded said media data to said memory coupled to said first

server, said content server further adapted to provide said second multiple description bitstream of encoded said media data to said memory coupled to said second server.

5           22. The system for streaming media data to a client of Claim 20, wherein said media data is selected from the group comprising audio-based data, speech-based data, image-based data, graphic data, and web page-based data.

10           23. The system for streaming media data to a client of Claim 20, wherein said client is a mobile client.

15           24. The system for streaming media data to a client of Claim 23 wherein said first server is placed along a wired/wireless gateway of a network.

20           25. The system for streaming media data to a client of Claim 20 wherein said second server is placed along a wired/wireless gateway of a network.

25           26. The system for streaming media data to a client of Claim 20 wherein first server and said second server reside within a network system selected from the group comprising: wired and wired networks; wired and wireless networks; wireless and wired networks; and wireless and wireless networks.